



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/886,372	06/22/2001	Koichi Kagawa	FQ-IP21403	5677
21254	7590	12/09/2004	EXAMINER	
MCGINN & GIBB, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			VITAL, PIERRE M	
			ART UNIT	PAPER NUMBER
			2188	

DATE MAILED: 12/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/886,372	KAGAWA, KOICHI
	Examiner Pierre M. Vital	Art Unit 2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 22 June 2001.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-21 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1,3,5,9,11,12,15,18 and 21 is/are rejected.
 7) Claim(s) 2,4,6-8,10,13,14,16,17,19 and 20 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 22 June 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>4/28/04</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

1. This Office Action is in response to Application No. 09/886,372 filed June 22, 2001. Claims 1-21 are pending in this application.
2. The specification and the claims have been examined with the results that follow.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

4. The information disclosure statement (IDS) submitted on April 28, 2004 is in compliance with the provisions of 37 CFR 1.97, 1.98 and MPEP §609. Accordingly, the information disclosure statement was considered by the examiner.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 3, 5, 9, 11-12, 15, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) and Lee et al (US6,678,678).

As per claim 1, AAPA discloses a table management device using degraded data as address data, wherein the degraded data is produced from input data having a predetermined number of bits, the degraded data having a smaller number of bits [*48-bit MAC is degraded to 10-bit*; pg. 1, lines 13-15], the table management device comprising: a plurality of tables allowed to be accessed according to the degraded data, wherein each of the tables is allowed to register a predetermined number of pieces of data, each of the pieces of data having a number of bits equal to the predetermined number of bits of the input data [*one entry in the table is decided in accordance with a 10-bit address*; pg. 1, line 17 – pg. 2, line 6]; a plurality of comparators provided for respective ones of the plurality of tables, wherein each of the comparators compares the input data to a piece of data read from a corresponding table according to the degraded data to produce a comparison result [*address obtained by the hash function and a MAC address is read and output to comparator*; pg. 2, lines 5-8]; and a determiner for determining from comparison results of the comparators whether the input data has been already registered in the tables [*comparator compares registered MAC address to input MAC address to judge match/mismatch*; pg. 2, lines 9-10].

However, AAPA does not specifically teach concurrently accessing a plurality of tables for comparison as recited in the claim.

Lee discloses a method of table searching wherein all table entries are compared against a search key at the same time and the search result delivered instantly, thereby providing high search performance (col. 1, lines 56-60). Since the technology for implementing the comparison of multiple table entries was well known as evidenced by

Lee, an artisan would have been motivated to implement this feature in the system of AAPA. Thus, it would have been obvious to one of ordinary skill at the time of the invention, to modify the system of AAPA to include comparing a plurality of tables at the same time because it was well known to provide high search performance (col. 1, lines 56-60) as taught by Lee.

As per claim 3, AAPA discloses each of the comparators compares a corresponding piece of data to the input data to produce a comparison result indicating one of match and mismatch; and the determiner determines that the input data has been registered in the tables when a match-indicating comparison result is received from at least one of the comparators, and determines that the input data is not registered in the tables when a mismatch-indicating comparison result is received from each of the comparators [*comparator compares registered MAC address to input MAC address to judge match/mismatch*; pg. 2, lines 9-10].

As per claim 5, AAPA discloses a method for managing an address table which is divided into a plurality of banks, comprising the steps of: a) converting input address data having a predetermined number of bits to address data having a smaller number of bits according to hash processing [*48-bit MAC is degraded to 10-bit*; pg. 1, lines 13-15]; b) accessing the banks according to the address data to read registered address data from each of the banks [*one entry in the table is decided in accordance with a 10-bit address*; pg. 1, line 17 – pg. 2, line 6]; c) comparing the input address data to the registered address data

read from each of the banks to produce comparison results for respective ones of the banks [*address obtained by the hash function and a MAC address is read and output to comparator*, pg. 2, lines 5-8]; and d) determining from the comparison results whether the input address data has been registered in the address table [*comparator compares registered MAC address to input MAC address to judge match/mismatch*; pg. 2, lines 9-10].

However, AAPA does not specifically teach concurrently accessing a plurality of tables for comparison as recited in the claim.

Lee discloses a method of table searching wherein all table entries are compared against a search key at the same time and the search result delivered instantly, thereby providing high search performance (col. 1, lines 56-60). Since the technology for implementing the comparison of multiple table entries was well known as evidenced by Lee, an artisan would have been motivated to implement this feature in the system of AAPA. Thus, it would have been obvious to one of ordinary skill at the time of the invention, to modify the system of AAPA to include comparing a plurality of tables at the same time because it was well known to provide high search performance (col. 1, lines 56-60) as taught by Lee.

As per claim 9, AAPA discloses a table management device using a hash output value as an address, wherein the hash output value is obtained by converting an input MAC (media access control) address based on a hash function [*48-bit MAC is degraded to 10-bit*; pg. 1, lines 13-15], the table management device comprising: a MAC address table which is divided into a plurality of banks allowed to be accessed using the hash

output value as an address [*one entry in the table is decided in accordance with a 10-bit address*; pg. 1, line 17 – pg. 2, line 6]; a plurality of comparators provided for respective ones of the plurality of banks, wherein each of the comparators compares the input MAC address to a registered MAC address read from a corresponding bank according to the hash output value to produce a comparison result [*address obtained by the hash function and a MAC address is read and output to comparator*; pg. 2, lines 5-8]; and a determiner for determining from comparison results of the comparators whether the input MAC address has been already registered in the MAC address table [*comparator compares registered MAC address to input MAC address to judge match/mismatch*; pg. 2, lines 9-10].

However, AAPA does not specifically teach concurrently accessing a plurality of tables for comparison as recited in the claim.

Lee discloses a method of table searching wherein all table entries are compared against a search key at the same time and the search result delivered instantly, thereby providing high search performance (col. 1, lines 56-60). Since the technology for implementing the comparison of multiple table entries was well known as evidenced by Lee, an artisan would have been motivated to implement this feature in the system of AAPA. Thus, it would have been obvious to one of ordinary skill at the time of the invention, to modify the system of AAPA to include comparing a plurality of tables at the same time because it was well known to provide high search performance (col. 1, lines 56-60) as taught by Lee.

As per claim 11, AAPA discloses each of the comparators compares a corresponding registered MAC address to the input MAC address to produce a comparison result indicating one of match and mismatch; and the determiner determines that the input MAC address has been registered in the MAC address table when a match-indicating comparison result is received from at least one of the comparators, and determines that the input MAC address is not registered in the MAC address table when a mismatch-indicating comparison result is received from each of the comparators [*comparator compares registered MAC address to input MAC address to judge match/mismatch; pg. 2, lines 9-10*].

As per claim 12, AAPA discloses a method for managing a plurality of tables, comprising the steps of: a) converting input data having a predetermined number of bits to degraded data having a smaller number of bits according to a predetermined algorithm [*48-bit MAC is degraded to 10-bit; pg. 1, lines 13-15*]; b) concurrently accessing the plurality of tables according to the degraded data to read registered data from each of the tables [*one entry in the table is decided in accordance with a 10-bit address; pg. 1, line 17 – pg. 2, line 6*]; c) comparing the input data to the registered data read from each of the banks to produce comparison results for respective ones of the tables [*address obtained by the hash function and a MAC address is read and output to comparator; pg. 2, lines 5-8*]; and d) determining from the comparison results whether the input data has been registered in the tables [*comparator compares registered MAC address to input MAC address to judge match/mismatch; pg. 2, lines 9-10*].

However, AAPA does not specifically teach concurrently accessing a plurality of tables for comparison as recited in the claim.

Lee discloses a method of table searching wherein all table entries are compared against a search key at the same time and the search result delivered instantly, thereby providing high search performance (col. 1, lines 56-60). Since the technology for implementing the comparison of multiple table entries was well known as evidenced by Lee, an artisan would have been motivated to implement this feature in the system of AAPA. Thus, it would have been obvious to one of ordinary skill at the time of the invention, to modify the system of AAPA to include comparing a plurality of tables at the same time because it was well known to provide high search performance (col. 1, lines 56-60) as taught by Lee.

As per claim 15, AAPA discloses a computer program for use in a computer to manage a plurality of tables, the program comprising the steps of: a) converting input data having a predetermined number of bits to degraded data having a smaller number of bits according to a predetermined algorithm [*48-bit MAC is degraded to 10-bit*; pg. 1, lines 13-15]; b) accessing the plurality of tables according to the degraded data to read registered data from each of the tables [*one entry in the table is decided in accordance with a 10-bit address*; pg. 1, line 17 – pg. 2, line 6]; c) comparing the input data to the registered data read from each of the banks to produce comparison results for respective ones of the tables [*address obtained by the hash function and a MAC address is read and output to*

comparator; pg. 2, lines 5-8]; and d) determining from the comparison results whether the input data has been registered in the tables [*comparator compares registered MAC address to input MAC address to judge match/mismatch*; pg. 2, lines 9-10].

However, AAPA does not specifically teach concurrently accessing a plurality of tables for comparison as recited in the claim.

Lee discloses a method of table searching wherein all table entries are compared against a search key at the same time and the search result delivered instantly, thereby providing high search performance (col. 1, lines 56-60). Since the technology for implementing the comparison of multiple table entries was well known as evidenced by Lee, an artisan would have been motivated to implement this feature in the system of AAPA. Thus, it would have been obvious to one of ordinary skill at the time of the invention, to modify the system of AAPA to include comparing a plurality of tables at the same time because it was well known to provide high search performance (col. 1, lines 56-60) as taught by Lee.

As per claim 18, AAPA discloses a computer system comprising: a processor on which a program is to run, wherein the program comprises the steps of: a) converting input data having a predetermined number of bits to degraded data having a smaller number of bits according to a predetermined algorithm [*48-bit MAC is degraded to 10-bit*; pg. 1, lines 13-15]; b) accessing the plurality of tables according to the degraded data to read registered data from each of the tables [*one entry in the table is decided in accordance with a 10-bit address*; pg. 1, line 17 – pg. 2, line 6]; c) comparing the input data to the registered

data read from each of the banks to produce comparison results for respective ones of the tables [*address obtained by the hash function and a MAC address is read and output to comparator*; pg. 2, lines 5-8]; and d) determining from the comparison results whether the input data has been registered in the tables [*comparator compares registered MAC address to input MAC address to judge match/mismatch*; pg. 2, lines 9-10].

However, AAPA does not specifically teach concurrently accessing a plurality of tables for comparison as recited in the claim.

Lee discloses a method of table searching wherein all table entries are compared against a search key at the same time and the search result delivered instantly, thereby providing high search performance (col. 1, lines 56-60). Since the technology for implementing the comparison of multiple table entries was well known as evidenced by Lee, an artisan would have been motivated to implement this feature in the system of AAPA. Thus, it would have been obvious to one of ordinary skill at the time of the invention, to modify the system of AAPA to include comparing a plurality of tables at the same time because it was well known to provide high search performance (col. 1, lines 56-60) as taught by Lee.

As per claim 21, AAPA discloses a recording medium storing a computer program for instructing a computer to manage a plurality of tables, the program comprising the steps of: a) converting input data having a predetermined number of bits to degraded data having a smaller number of bits according to a predetermined algorithm [*48-bit MAC is degraded to 10-bit*; pg. 1, lines 13-15]; b) concurrently accessing the

plurality of tables according to the degraded data to read registered data from each of the tables [*one entry in the table is decided in accordance with a 10-bit address*; pg. 1, line 17 – pg. 2, line 6]; c) comparing the input data to the registered data read from each of the banks to produce comparison results for respective ones of the tables [*address obtained by the hash function and a MAC address is read and output to comparator*; pg. 2, lines 5-8]; and d) determining from the comparison results whether the input data has been registered in the tables [*comparator compares registered MAC address to input MAC address to judge match/mismatch*; pg. 2, lines 9-10].

However, AAPA does not specifically teach concurrently accessing a plurality of tables for comparison as recited in the claim.

Lee discloses a method of table searching wherein all table entries are compared against a search key at the same time and the search result delivered instantly, thereby providing high search performance (col. 1, lines 56-60). Since the technology for implementing the comparison of multiple table entries was well known as evidenced by Lee, an artisan would have been motivated to implement this feature in the system of AAPA. Thus, it would have been obvious to one of ordinary skill at the time of the invention, to modify the system of AAPA to include comparing a plurality of tables at the same time because it was well known to provide high search performance (col. 1, lines 56-60) as taught by Lee.

Allowable Subject Matter

7. Claims 2, 4, 6-8, 10, 13-14, 16-17 and 19-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

(a) As per claims 2, 10, the prior art of record does not teach or suggest "a controller controlling the tables such that, when the input data has not been registered in the tables and an available memory area exists in memory space of the tables concurrently accessed according to the degraded data, the input data is registered as new data in the available memory area of the tables" in combination with the other elements set forth in the claimed invention.

Therefore, claim 4 is allowable as being directly or indirectly dependent upon claim 2 and having additional allowable features therein.

(b) As per claims 6, 13, 16 and 19, the prior art of record does not teach or suggest "when the input address data has not been registered in the address table, determining whether an available memory area exists in memory space of the banks concurrently accessed according to the address data; when an available memory area exists, registering the input address data as new address data in the available memory area; and when no available memory area exists, changing the hash processing" in combination with the other elements set forth in the claimed invention.

Therefore, claims 7-8, 14, 17 and 20 are allowable as being directly or indirectly dependent upon claims 6, 13, 16 and 19 respectively and having additional allowable features therein.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 CFR § 1.111 (c) to consider these references fully when responding to this action. The documents cited therein teach hashing, and comparing addresses in hash table.

9. The examiner requests, in response to this Office action, any reference(s) known to qualify as prior art under 35 U.S.C. sections 102 or 103 with respect to the invention as defined by the independent and dependent claims. That is, any prior art (including any products for sale) similar to the claimed invention that could reasonably be used in a 102 or 103 rejection. This request does not require applicant to perform a search. This request is not intended to interfere with or go beyond that required under 37 C.F.R. 1.56 or 1.105.

The request may be fulfilled by asking the attorney(s) of record handling prosecution and the inventors)/assignee for references qualifying as prior art. A simple statement that the query has been made and no prior art found is sufficient to fulfill the request. Otherwise, the fee and certification requirements of 37 CFR section 1.97 are waived for those documents submitted in reply to this request. This waiver extends only

to those documents within the scope of this request that are included in the application's first complete communication responding to this requirement. Any supplemental replies subsequent to the first communication responding to this request and any information disclosures beyond the scope of this are subject to the fee and certification requirements of 37 CFR section 1.97.

In the event prior art documentation is submitted, a discussion of relevant passages, figs., etc., with respect to the claims is requested. The examiner is looking for specific references to 102/103 prior art that identify independent and dependent claim limitations. Since applicant is most knowledgeable of the present invention and submitted art, his/her discussion of the reference(s) with respect to the instant claims is essential. **A response to this inquiry is greatly appreciated.**

10. The examiner also requests, in response to this Office action, support be shown for language added to any original claims on amendment and any new claims. That is, indicate support for newly added claim language by specifically pointing to page(s) and line no(s) in the specification and/or drawing figure(s). This will assist the examiner in prosecuting the application.

11. When responding to this office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present, in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections See 37 CFR 1.111(c).

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre M. Vital whose telephone number is (571) 272-4215. The examiner can normally be reached on 8:30 am - 6:00 pm, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571) 272-4210. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

December 6, 2004



Pierre M. Vital
Primary Examiner
Art Unit 2188